

## Title (en)

Front light device, liquid crystal display device and personal digital assistant

## Title (de)

Vorderflächebeleuchtungsvorrichtung, Flüssigkristallanzeigevorrichtung und persönlicher digitaler Assistent

## Title (fr)

Dispositif d'illumination frontal, dispositif d'affichage à cristaux liquides et assistant numérique personnel

## Publication

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## Application

**EP 07115794 A 20010326**

## Priority

- EP 01107525 A 20010326
- JP 2000097030 A 20000331
- JP 2001021844 A 20010130

## Abstract (en)

[origin: EP1139015A1] A compact and light weight front light, a reflective liquid crystal display device and a personal digital assistant providing image display of uniform brightness with high efficiency are provided. The front light includes a main optical guide plate (1) and a second optical guide plate (2). The second optical guide plate is arranged at an end portion of the main optical guide plate along the widthwise direction, and on an end surface opposite to an end surface facing the main optical guide plate, a plurality of prism-shaped grooves (12) are formed along the longitudinal direction, extending in the depth direction. The front light further includes a point light source (3) arranged at an end in the longitudinal direction of the second optical guide plate, and a reflective film (11) covering the surface of the prism-shaped grooves. <IMAGE>

## IPC 8 full level

**F21V 8/00** (2006.01); **G02B 6/00** (2006.01); **G02F 1/1335** (2006.01); **G02F 1/13357** (2006.01); **G09F 9/00** (2006.01); **F21Y 101/02** (2006.01)

## CPC (source: EP KR US)

**G02B 6/0018** (2013.01 - EP US); **G02B 6/002** (2013.01 - EP US); **G02B 6/0028** (2013.01 - EP US); **G02B 6/0036** (2013.01 - EP US); **G02B 6/0038** (2013.01 - EP US); **G02B 6/0061** (2013.01 - EP US); **G02F 1/1335** (2013.01 - KR)

## Citation (search report)

- [Y] US 5668913 A 19970916 - TAI PING-KAUNG [US], et al
- [Y] WO 9617207 A1 19960606 - PRECISION LAMP INC [US]
- [Y] US 5961198 A 19991005 - HIRA YASUO [JP], et al
- [Y] WO 9960303 A1 19991125 - MINNESOTA MINING & MFG [US], et al
- [A] EP 0969311 A1 20000105 - MINEBEA CO LTD [JP]

## Cited by

CN102047035A; WO2009149118A3

## Designated contracting state (EPC)

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## DOCDB simple family (publication)

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## DOCDB simple family (application)

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